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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,950	02/19/2004	Andrew C. Hiatt	EPI3009 (068904-0507)	4806

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EXAMINER	
WESSENDORF, TERESA D	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/783,950	HIATT ET AL.	
	Examiner	Art Unit	
	T. D. Wessendorf	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-34,38-63 and 67-71* is/are pending in the application.

4a) Of the above claim(s) *25-34,38-52,56 and 57* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *53-55,58-63 and 67-71* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 25-34, 38-63 and 67-71 are pending

Claims 25-34, 38-52 and 56-57 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

Claims 53-55, 58-63 and 67-71 are under examination.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

Claims 53-55, 58-63 and 67-71 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention and repeated below.

The claims recite for a CHBP array in eukaryotic cells, comprising at least two eukaryotic cells that are each transformed with a different polynucleotide encoding at least one CHBP polypeptide having the characteristics of (a), (b), (c)

and (d), as recited. In order to satisfy a written description requirement for a claimed genus a sufficient description of a representative number of species by actual reduction to practice or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus. See Eli Lilly, 119 F.3d at 1568, 43 USPQ2d at 1406. A representative number of species means that the species, which are adequately described, are representative of the entire genus. The disclosure of only one species encompassed within a genus adequately describes a claim directed to that genus only if the disclosure indicates that the applicants have invented species sufficient to constitute the gen[us]. Noelle v. Lederman, 355 F.3d 1343, 1350, 69 USPQ2d 1508, 1514 (Fed. Cir. 2004) (Fed. Cir. 2004).

The specification provides a general statement, definition and lists of the different components (ChBP) from mouse and human. However, the detail description provided in the specification, specifically the EXAMPLES describe a single species of plant, insect and mammalian cell for transformation of a CHBP derived from a single source. There is nothing in the

specification that recites for a sequence of an amino acid that is at least 75% identical to a native Ig heavy chain. Neither is a sequence of 25 consecutive amino acid portion of an Ig light or heavy variable region is described. Furthermore, there is no description of a structure of any CHBP having any or all of the claimed characteristics of the genus array. It does not describe any amino acid sequence for any of the CHBP native Ig. More importantly, since not a single sequence is described, hence, it is not apparent as to the binding function of said CHBP to its ligand of a kD of 10-5. Also, absent any sequences, it is not apparent from the general description as to the kind, location, number of amino acid differences in each of the array. At page 19, line 25 up to page 20, the specification broadly defines an IgBP array. It is defined as a population of eukaryotic cells or organisms e.g., plantlets that are transformed with different polynucleotide, each of which encodes a different IgBP. This general description is recited in the claims. The specification also provides a list or defines the different fragments of Ig. A listing of every possible eukaryote does not constitute a written description of every species in a genus. It would not reasonably lead those skilled in the art to any particular species. In re Ruschig, 379 F.2d 990, 995, 154 USPQ 118, 123 (CCPA 1967). The claims recite for amino acid sequence without

describing a single amino acid sequence for an Ig that can be obtained from any source. It is not readily apparent from the specification whether the array contains genus of the same or different eukaryotic cells. The huge scope of the genus recites for numerous undefined variables, besides having no amino acid sequence. The determination of even a single variable is hard to predict. In biotechnological invention one cannot necessarily claim a genus after only describing a single species because there may be unpredictability in the results obtained from species other than those specifically described. The high unpredictability in this art is evident from Hiatt's (FEBS) disclosure at e.g., page 71. Hiatt states that "..not all plants are amenable to the manipulations required for the stable introduction of foreign DNA. ...As plant expression vectors are generally large already and contain only one promoter and one polylinker region, it is probably wise to express only one immunoglobulin each vector and to transform separate plants with individual heavy and light chain expressing vectors. ..." With current plant transformation methods insertion of DNA into the genome occurs randomly in many instances at multiple sites. Associated position effects, copy number differences and multigene interactions can make a gene expression experiments difficult to interpret and plant phenotypes less predictable.

Choi et al (Nucleic acids Research, page i). The more unpredictable the art the greater the showing required (e.g. by (representative examples) for both enablement and adequate disclosure. A written description of an invention involving a chemical genus, like a description of a chemical species, requires a precise definition, such as by structure, formula [or] chemical name of the claimed subject matter sufficient to distinguish it from other materials. University of California v. Eli Lilly and Col, 43 USPQ 2d 1398, 1405(1997), quoting Fiers V. Revel, 25 USPQ 2d 1601m 16106 (Fed. Cir. 1993). See also University of Rochester v. G.D. Searle & Co., 68 USPQ2d 1424 (DC WNY 2003).

The specification does not also describe the numerous ligands that can bind to the CHBP array such that a specificity binding of Kd <10-6 is obtained. It is not apparent as to the different ligand that binds to each and every single CHBP in an array that results in the transformation in any type of plant, insect or mammalian cells. No binding test results are described in the specification and might very well because of the complex nature or structure of array in eukaryotes. Binding of each of the single CHBP in an array is only one but one of the numerous undefined variables of the claimed method. Furthermore, the disclosure does not describe an array comprising at least 100,

1,000 and 10,000 different binding proteins assembled by the cells in an array. Applicants, at the time of filing, are deemed to have not invented species sufficient to constitute the genus by virtue of having disclosed a single species when … the evidence indicates ordinary artisans could not predict the operability in the invention of any species other than the one disclosed. In re Curtis, 354 F.3d 1347, 1358, 69 USPQ2d 1274, 1282 (Fed. Cir. 2004).

Response to Arguments

Applicants cite the Capon case law to rebut the written description requirement. However, the case law is inappropriate in the instant case. Unlike Capon, the prior art cited in the present application discloses unforeseen effects of the present array. See the Hiatt (FEBS) disclosure at e.g., page 71. Hiatt states that "..not all plants are amenable to the manipulations required for the stable introduction of foreign DNA. …As plant expression vectors are generally large already and contain only one promoter and one polylinker region, it is probably wise to express only one immunoglobulin each vector and to transform separate plants with individual heavy and light chain expressing vectors. …" With current plant transformation methods insertion of DNA into the genome occurs randomly in many instances at multiple sites. Associated position effects, copy

number differences and multigene interactions can make a gene expression experiments difficult to interpret and plant phenotypes less predictable. Choi et al (Nucleic acids Research, page i). The more unpredictable the art the greater the showing required (e.g. by (representative examples) ***for both enablement and adequate disclosure.*** A written description of an invention involving a chemical genus, like a description of a chemical species, requires a precise definition, such as by structure, formula [or] chemical name of the claimed subject matter sufficient to distinguish it from other materials. University of California v. Eli Lilly and Col, 43 USPQ 2d 1398, 1405(1997), quoting Fiers V. Revel, 25 USPQ 2d 1601m 16106 (Fed. Cir. 1993). See also University of Rochester v. G.D. Searle & Co., 68 USPQ2d 1424 (DC WNY 2003).

New Matter Rejection

The claimed "ChBP array in euckaryotic cells that result from transfecting with a library of polynucleotides" is not supported in the as-filed specification. Applicants state that support is found at page 30, lines 23-29. However, a review of said section recites for IgBP not the CHBP as presently claimed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 53-55, 58, 63 and 67-71, as amended, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 53 is unclear whether the individual location in the array is transfected with a library of polynucleotide or each member of the library is comprised in each location of the array. This appears inconsistent with the subsequent claimed description of the transformed array with a different polynucleotide i.e., a single polynucleotide in each addressable location of the array.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 53-55, 58, 63 and 67-71, as amended, are rejected under 35 U.S.C. 102(b) as being anticipated by Ma et al (Eur. J. Immunol.) [This rejection is based on the interpretation that the claimed at least 75% identical to a constant region tailpiece of a mu or alpha chain of native Ig heavy chain (i.e., the full length sequence of CHBP or Ig.) and reiterated below.

Ma discloses at page 132 under Materials and methods section including Fig. 1, the different forms of heavy chain (array as claimed) transformed in plants i.e., Plant G13, Plant G1/A and G2/A. Ma at page 133 under the RESULTS section, paragraph 3.2 discloses that 22 transgenic plants were regenerated form the transformation with light or heavy chain constructs. The antigen binding capability of the mab is disclosed at page 138, paragraph 3.4 including the figures up to page 137. At page 138, paragraph 3.5, Ma discloses the different eukaryotic cells i.e., mouse and plant. Accordingly, the specific heavy chain of Ma that binds to the antigen S. mutants fully meets the broad claimed array. The claimed features of the heavy chain i.e., its binding capability (kD value) and covalent (disulfide) bond formation are properties considered inherent to the full-length heavy chain. [Note these properties are normally

possess by the native mab (Ig).] Where the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See In re Ludtke, supra. Whether the rejection is based on "inherency" under 35 USC 102, on "prima facie obviousness" under 35 USC 103, jointly or alternatively, the burden of proof is the same as is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. See In re Brown, 59 CCPA 1036, 459 F.2d 531, 173 USPQ 685 (1972); In re Best 195 USPQ 430 (CCPA 1977).

Response to Arguments

Applicant argues that the claimed CHBP results from transfecting with a library of polynucleotide, which Ma does not describe. Ma discloses transfecting with a single polynucleotide.

In response, the disclosure of Ma as to the different forms of CHBP that are transfected into plants would read on a library (which is at least two compounds).

No claim is allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

This application contains claims 25-34, 38-52 and 56-57 drawn to a non-elected invention. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. D. Wessendorf whose telephone number is(571) 272-0812. The examiner can normally be reached on Flexitime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. D. Wessendorf
Primary Examiner
Art Unit 1639

Tdw
March 3, 2006